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Erratum: Stress tensor and current correlators of interacting conformal field theories in 2+1 dimensions: fermionic Dirac matter coupled to U(1) gauge field

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Here we fix a sign error which affects results of two diagrams and therefore the C_T value. The corrected Feynman rule is represented in the figure below.

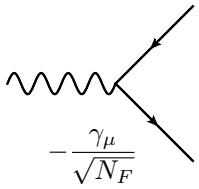

Figure 1. Corrected Feyman rule from figure 1 of the main text.

This changes the signs of diagrams 4 and 6 of the C_T evaluation.

Therefore the final expression for C_T is modified to

$$\begin{aligned}\frac{C_T}{N_F} &= \frac{1}{256}\left(1+\frac{1}{N_F}\left(\tilde{C_T}^{(1)}+\frac{104}{15\pi^2}\right)\right)\\ &= \frac{1}{256}\left(1+\frac{0.28701185900024704065}{N_F}\right)\,.\end{aligned}$$

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$$T^{(4)}_{\mu\nu\lambda\rho}(p) = N_F \mathrm{Tr}\left[\int_{\boldsymbol{k},\boldsymbol{q}} \frac{1}{4}\gamma_\lambda(2\boldsymbol{k}+\boldsymbol{p})_\rho \frac{(\boldsymbol{k}+\boldsymbol{p})_a\gamma_a}{(\boldsymbol{k}+\boldsymbol{p})^2}\frac{\gamma_\epsilon}{\sqrt{N_F}}\frac{(\boldsymbol{k}+\boldsymbol{p}+\boldsymbol{q})_b\gamma_b}{(\boldsymbol{k}+\boldsymbol{p}+\boldsymbol{q})^2}\frac{\gamma_\mu}{2\sqrt{N_F}}\frac{k_c\gamma_c}{k^2}\frac{16}{q}\left(\delta_{\nu\epsilon}-\frac{q_\nu q_\epsilon}{q^2}\right)\right] + (\text{perm2})$$

$$\begin{aligned} T^{(6)}_{\mu\nu\lambda\rho}(p) = &-\int_{\boldsymbol{q}} N_F \mathrm{Tr}\left[\int_{\boldsymbol{k}} \frac{\gamma_\rho}{2\sqrt{N_F}}\frac{k_a\gamma_a}{k^2}\frac{\gamma_\kappa}{\sqrt{N_F}}\frac{(\boldsymbol{k}+\boldsymbol{q})_b\gamma_b}{(\boldsymbol{k}+\boldsymbol{q})^2}\right]\frac{16}{q}\left(\delta_{\kappa\epsilon}-\frac{q_\kappa q_\epsilon}{q^2}\right)\frac{16}{|\boldsymbol{p}+\boldsymbol{q}|}\left(\delta_{\lambda\alpha}-\frac{(\boldsymbol{p}+\boldsymbol{q})_\lambda(\boldsymbol{p}+\boldsymbol{q})_\alpha}{(\boldsymbol{p}+\boldsymbol{q})^2}\right) \\ &\left(N_F \mathrm{Tr}\left[\int_{\boldsymbol{l}} \frac{1}{4}\gamma_\mu(\boldsymbol{p}+2\boldsymbol{l})_\nu \frac{l_c\gamma_c}{l^2}\frac{\gamma_\alpha}{\sqrt{N_F}}\frac{(\boldsymbol{p}+\boldsymbol{q}+\boldsymbol{l})_d\gamma_d}{(\boldsymbol{p}+\boldsymbol{q}+\boldsymbol{l})^2}\frac{\gamma_\epsilon}{\sqrt{N_F}}\frac{(\boldsymbol{p}+\boldsymbol{l})_e\gamma_e}{(\boldsymbol{p}+\boldsymbol{l})^2}\right]\right. \\ &\left.+N_F \mathrm{Tr}\left[\int_{\boldsymbol{l}} \frac{1}{4}\gamma_\mu(\boldsymbol{p}+2\boldsymbol{q}+2\boldsymbol{l})_\nu \frac{(\boldsymbol{q}+\boldsymbol{l})_c\gamma_c}{(\boldsymbol{q}+\boldsymbol{l})^2}\frac{\gamma_\epsilon}{\sqrt{N_F}}\frac{l_d\gamma_d}{l^2}\frac{\gamma_\alpha}{\sqrt{N_F}}\frac{(\boldsymbol{p}+\boldsymbol{q}+\boldsymbol{l})_e\gamma_e}{(\boldsymbol{p}+\boldsymbol{q}+\boldsymbol{l})^2}\right]\right) + (\text{perm2}) \end{aligned}$$

Figure 2. Analytical expressions for the diagrams 4 and 6 in figure 5 of the main text. Here, "perm2" indicates permutations $(\mu \leftrightarrow \nu)$, $(\lambda \leftrightarrow \rho)$, and $(\mu \leftrightarrow \nu, \lambda \leftrightarrow \rho)$, and $(\mu \leftrightarrow \lambda, \nu \leftrightarrow \rho)$, switched as a pair. "perm2" will increase the number of terms by a factor of 8.

Diagram	$C_T^{(i)}$	Log-Singularity	Factor a_i
4	$-\frac{19}{288\pi^2}$	$-\frac{1}{24\pi^2}p^3\log\frac{\Lambda}{p}$	2
6	$-\frac{1}{128}+\frac{19}{144\pi^2}$	$\frac{1}{12\pi^2}p^3\log\frac{\Lambda}{p}$	1

Table 1. Evaluated contributions to the stress tensor correlator and the log-singularities. The log-singularities cancel exactly after summing all graphs.

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